

## CLAIMS

What is claimed is:

1. A data search system comprising:
  - 5 a data acquisition means for acquiring results of a data search based on certain search criteria;
  - an image processing means for representing, as a set for each of said search criteria, the results of said data search acquired by said data acquisition means and converting each set to an n-polygonal image, where n  
10 is a natural number, and having an area corresponding to the magnitude of element count of each set; and
  - a display control means for causing each n-polygonal image converted by said image processing means to be displayed on a predetermined display device, wherein each of said multiple n-polygonal  
15 images is displayed within the same display region while maintaining a relative relationship with other n-polygonal images based on said search criteria.
2. A data search system according to claim 1, wherein said image  
20 processing means converts each of said sets to an n-polygonal image having an area corresponding to the magnitude of element count of each of said sets and a relative relationship in position based on said search criteria.
3. A data search system according to claim 1, wherein said image  
25 processing means represents the data search result obtained by a Boolean AND operation of said search criteria as an overlap of the n-polygonal images converted from the respective sets of said search criteria.
4. A data search system according to claim 1, wherein said image  
30 processing means derives said n-polygonal image by repeating a convergent calculation for drawing under certain restricting parameters, wherein said convergent calculation is initiated under restricting parameters where a convex polygon appears, and if said convergence does not appear as a

convex polygon after repeating a certain number of times, the restricting parameters are switched so that a concave polygon appears.

5           5.     A data search system according to claim 4, wherein said image processing means identifies the shape of said n-polygonal image by a radius and argument of its polar coordinates, and calculates the area of said n-polygonal image by an operational expression having said radius and n as its variables.

10           6.     A data search system according to claim 5, wherein when multiple sets of said search criteria contain any product set determined by a Boolean AND operation, said image processing means derives the area of said product set as a result of convergent calculation for an increase or decrease in said radius.

15           7.     A data search system according to claim 1, further comprising:  
              an image storage means for storing said n-polygonal image converted as the data search results, where only a portion of said search criteria differs, according to said search criteria that are commonly shared by  
20     the rest of said search criteria, wherein said image processing means causes multiple n-polygonal images that vary with changes in a portion of said search criteria to be displayed within the same display region of said display device.

25           8.     A data search system according to claim 7, wherein when the shape of said n-polygonal image is identified by a radius and argument of its polar coordinates and the area of said n-polygonal image is calculated by an operational expression having said radius and n as its variables, said image processing means places in the same position the poles of said polar coordinates and their initial lines for a plurality of n-polygonal images  
30     displayed within said same display region.

          9.     A data search system according to claim 1, wherein said n-polygonal image is used as a Venn diagram image.

10. A data search system according to claim 9, further comprising:  
a means for changing the value of n for said n-polygonal image  
a posteriori.

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11. A method for displaying a data search result comprising the  
steps of:

representing a result of a data search based on certain search  
criteria as a set according to each of said search criteria;

10 converting each of said sets to an n-polygonal image having an  
area corresponding to the magnitude of element count of each of said sets  
and a relative relationship in position among said search criteria; and

displaying each converted n-polygonal image on a  
predetermined display device, wherein each of the multiple n-polygonal  
15 images is displayed within the same display region while maintaining a  
relative relationship with other n-polygonal images based on said search  
criteria.

12. A method for displaying a data search result according to claim  
20 11, and further comprising the steps of:

obtaining each of said n-polygonal images under a plurality of  
search criteria where only a time-frame element is different is stored; and

simultaneously displaying said n-polygonal images at all time  
frames in the same coordinate system on said display device.

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13. A method for displaying a data search result according to claim  
11, and further comprising the steps of:

obtaining each of said n-polygonal images under a plurality of  
search criteria where only a time-frame element is different is stored; and

30 simultaneously displaying said n-polygonal images at different  
time frames in the same coordinate system on said display device.

14. A computer program in a computer that conducts a data search based on certain search criteria, said computer comprising;

a data acquisition means for acquiring results of data search based on said search criteria;

5 an image processing means for representing said search results acquired by said data acquisition means as sets according to each of said search criteria and converting each of said sets to an n-polygonal image where n is a natural number, and having an area corresponding to the magnitude of element count of each of said sets; and

10 a display control means for causing a predetermined display device to display each of said n-polygonal images converted by said image processing means, wherein said computer program causes each of said multiple n-polygonal images to be displayed within the same display region on said display device while maintaining a relative relationship with other n-  
15 polygonal images based on said search criteria.

15. A computer program according to claim 14, further comprising a computer-readable storage medium for storing said computer program.